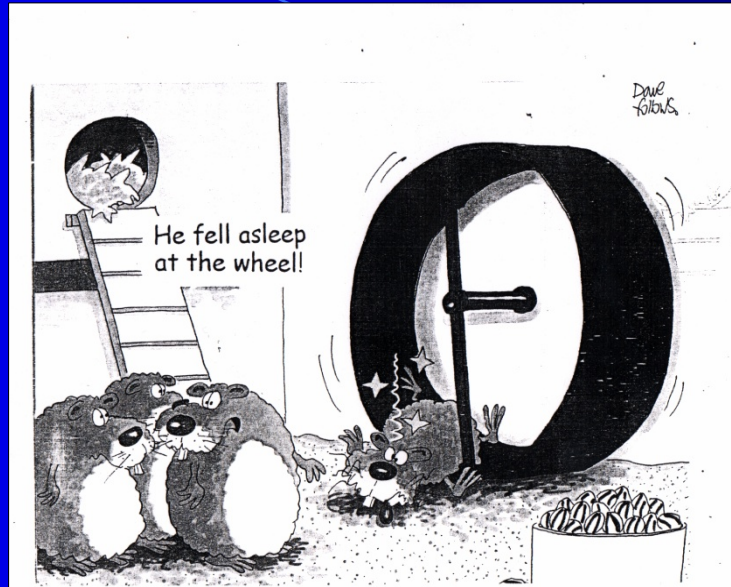




Insomnia And Circadian Dysrhythmia

Overview

Insomnia

- Definitions
- Prevalence
- Evaluation
- The 3 P'S
- Treatments

Circadian Dysrhythmia

- Definition
- Prevalence
- Circadian Cycle
- Treatments
- Case studies

Insomnia

10-15% of adults suffer from chronic and severe insomnia
(Complaints of insomnia with daytime consequences)

30–40% of adults complain of insomnia symptoms only

95% experience insomnia at some time in their lives

Insomnia

Risk Factors:

Female 2:1 (?More likely to report insomnia)

Increasing age (? Increased likelihood of medical complaints)

Stress/Anxiety (Hyper-arousal Disorder)

Psychiatric Illness

Medical disorder

Social factors (Unemployed, single, physical inactivity)

Environmental factors (noisy environment, latitude-SAD)

Insomnia

Evaluation: The three P's

- Predisposing Factors

Genetics, Personality type, Social Pressures

- Precipitating Factors

Stressful life event. "Trigger" for insomnia.

- Perpetuating Factors.

Compensatory strategies. Eg longer in bed.

Staying in bed

Insomnia

Treatments:

CHEMICAL

- Herbal
- Allopathic

BEHAVIOURAL

- Sleep hygiene
- Stimulus control
- Bed Restriction Therapy

Insomnia

HERBAL MEDICINES

- VALERIAN
- KAVA
- ST JOHN WORT
- MELATONIN
- CHAMOMILLE
- OTHERS

Insomnia

Chemical

Advantages

- Freely available
- Probably less side effects

Disadvantages

- Few studies
- Inconsistent product
- Unknown interactions of side effects
- Less effective

Insomnia

Allopathic

HISTORY

Antiquity	- Alcohol and Laudanum
1860's & 70's	- Bromides and Chloral Hydrate
1880's	- Paraldehyde, urethane
1900's	- Barbiturates
1960's	- Benzodiazepines - 1 st Chlordiazepoxide (Librium)
1980's – 90's	- Zopiclone, Zolpidem
2000	- Zaleplon

Insomnia

Allopathic

HYPNOTICS – Which one?

Benzodiazepines

- Triazolam
- Temazepam
- Nitrazepam

Non Benzodiazepines

- Zopiclone
- Zolpidem
- Zaleplon

Insomnia

Allopathic

Benzodiazepines

Benefits

- effective
- wide margin of safety
- slow tolerance

Adverse effects

- residual sedation
- anterograde amnesia
- rebound insomnia
- Dependence

Contraindications and Precautions

Insomnia

Allopathic

Hi Antihistamine

- daytime drowsiness
- impaired learning

Sedating Antidepressants

- cardiotoxic
- anticholinergic
- increase P.L.M.s
- impaired daytime performance
- rapid tolerance

Insomnia

Allopathic

Use short acting hypnotics for short term treatment in low dose

Use sedating antidepressants in full doses for insomnia associated with depression

Sleep Hygiene

for those with insomnia

Behavioural

Sleep Hygiene involves improving factors required for the maintenance of a normal, regular sleep/wake cycle.

eg. Avoid stimulants/alcohol, Exercise regularly,
Bedroom environment comfortable, dark, quiet.
Regular sleep schedule. Allow 1hr unwind time.

Important, but by itself, rarely effective

Stimulus Control

for those with insomnia

Stimulus Control is based on classical conditioned response to certain stimuli.

This involves strengthening the relationship between bed and sleep, and breaking the negative relationship between bed and anxiety and wakefulness

Important and Effective

Stimulus Control Therapy

Go to bed when sleepy

Do not watch TV, read, eat or worry while in bed

Do not nap during the day

Set regular wake up/get up time – including weekends

Get out of bed if unable to fall asleep in 15 – 20 minutes, or
anxious. Remain up for 20-30 minutes only.

Repeat as often as necessary

Bed Restriction Therapy

for those with insomnia

Bed restriction therapy is designed to improve sleep consolidation and sleep efficiency.

This is achieved by initially increasing the homeostatic drive to sleep.

Sleep efficiency is improved.

Time in bed can then be increased

The most difficult, but the most effective

Bed Restriction Therapy

Average the time asleep over 2 weeks

Add $\frac{1}{4}$ - $\frac{1}{2}$ Hour

Restrict time in bed to that time

Increase time in bed slowly when sleeping is consolidated to 85% - 90%. Restrict further if < 80%

Circadian Rhythm Disorders

Endogenous:

Delayed Sleep Phase Syndrome (DSPS)

Advanced sleep Phase Syndrome (ASPS)

Non entrained type

Behavioural:

Shift Work: biologically defined as “any work pattern that changes your sleep pattern”

Jet Lag: Circadian clock is out of synchrony with the time zone

Circadian Rhythm Disorders

Endogenous:

Delayed Sleep Phase Syndrome (DSPS)

Typically in teenagers. Associated with delayed melatonin onset.

Unable to get to sleep until early hours of the morning, and inability to get up in the morning.

Often misdiagnosed as Sleep onset Insomnia

Circadian Rhythm Disorders

Endogenous:

Advanced Sleep Phase Syndrome (ASPS)

Typically in the elderly. Associated with advanced melatonin onset.

Desire to sleep early in the evening, and wakes early in the morning.

Often misdiagnosed as Sleep Maintenance Insomnia

Circadian Rhythm Disorders

Endogenous:

Non-Entrained Type

Typically in the blind

Disorganised, free-running Sleep/Wake Cycle.

Often successively delayed Sleep/Wake Cycle
(because of the longer endogenous sleep cycle)

Circadian Rhythm

Circadian Process

- Sleep onset associated with Melatonin onset (DMLO)
(Yawning, onset of sleepiness)
- Core body temperature then drops by 1 – 1.5°C
(Necessary to maintain sleep overnight)
- As Core body temp drops we become increasingly tired
- Cortisol levels begin to rise at ~4.00am
- Lowest core body temperature at 4.30am-5.00am

Circadian Rhythm

Circadian Process

- Wake up~6.30am-7.00am as Core body temp (cbt) rises
- As core body temp rises we feel more alert.
- Despite a poor night's sleep, we feel better by midday
- At some time between 2.00pm - 5.00pm we feel sleepy
(Drop in cbt results in sleepiness = Siesta time)
- Cbt then rises in the evening. (may be difficult to sleep)
- Melatonin onset at ~ 10.00pm -10.30pm

Circadian Rhythm

Homeostatic Process

- On waking, sleep debt has been paid, and you wake feeling refreshed.
- As the day progresses, sleep debt increases.
- The longer we are awake, the greater the pressure to sleep

Circadian Rhythm

Homeostatic Process

This can be affected by a number of factors.

Poor quality of sleep (OSA, PLMS) will reduce the ability to repay the sleep debt.

Limited quantity of sleep (insomnia, shift work) will also reduce the ability to repay the sleep debt.

Circadian Rhythm

**Ideally, both the
Homeostatic Process
and
Circadian Process
should combine to assist with sleep onset.**

Circadian Rhythm

TREATMENTS:

Delayed Sleep Phase syndrome:

1. Morning light (after the assumed lowest cbt)
2. Dim light in the evening, consider Melatonin to in the evening to advance the sleep phase.
3. May combine with Bed Restriction Therapy
4. Advance wake time by 15mins every 3-4 days
5. Avoid 'Sleeping in" at week ends.

Circadian Rhythm

TREATMENTS:

Advanced Sleep Phase syndrome:

1. Evening light.
2. Dim light in the morning, Melatonin to in the morning to delay the sleep phase. Controversial.
3. May combine with Bed Restriction Therapy
4. Delay bed time by 15mins every 3-4 days
5. Avoid late napping in the day.

Circadian Rhythm

TREATMENTS:

Non-entrained circadian syndrome:

1. Melatonin at night.
2. Waking at a regular time in the morning.
3. Regular social cues (meals, radio/tv, bedtime).

Insomnia & Circadian Rhythm

TREATMENTS:

There are now excellent “evidenced based” behavioural treatment for both these conditions.

They may take a little longer than writing a prescription, and more commitment from the patient, but many are prepared to make this effort.

Thank You

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